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The Williams Collection of Shells

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From one of many notices from well known conchologists sent to Mrs. Williams.

April 24, 1908.

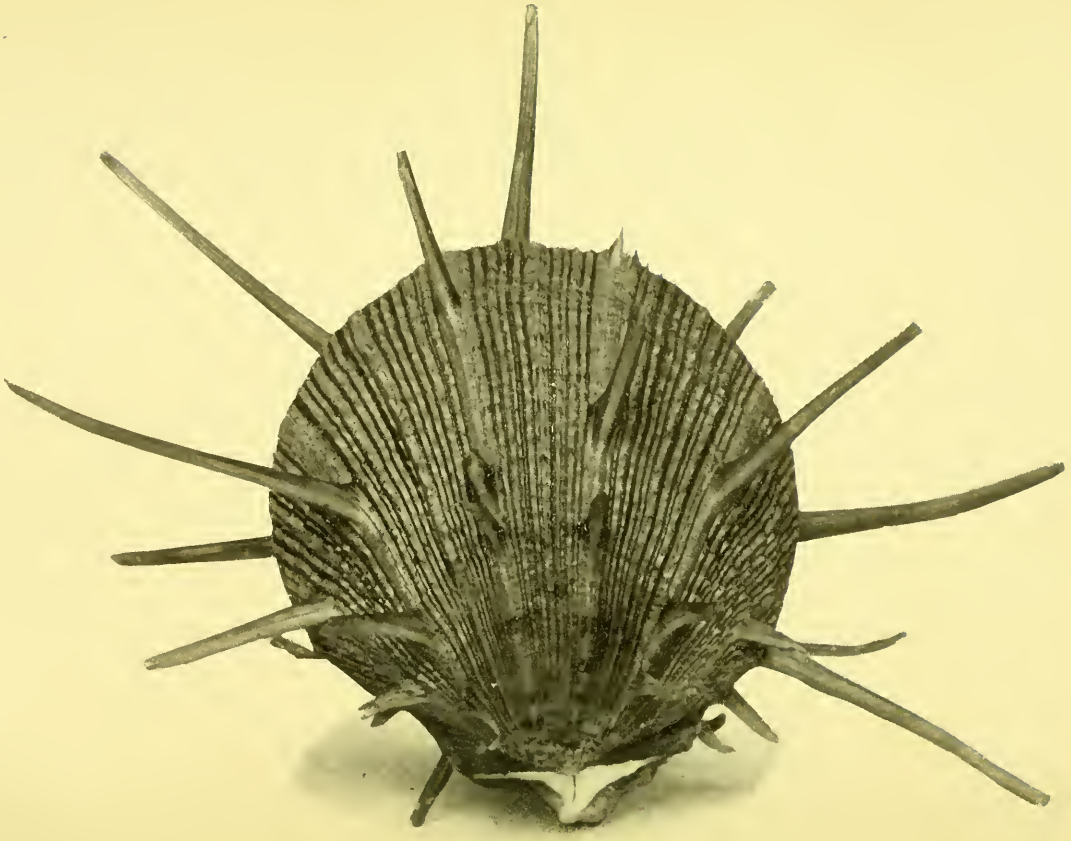
In my article in the magazine I did not have space to describe the many different points in which your Conchological Collection is unique, and stands out so prominently and you might almost say alone, among the great world collections. It is unique in the lavish abundance of the most beautiful and costly specimens of each leading family. For instance, take the Aurantias, the Scottii, and Decipiens, and very many other rare species of the Cypraeidae, all represented by numerous specimens. The same may be said of the palma roseas, the rotas and tenuispinas of the Muricidae, and the imperialis, and junonias of the Volutidae. Most collectors would be satisfied with one specimen of these rare shells, but your collection by having numerous specimens, shows all the variations of form and coloring found in each species, and each one is the finest that can be procured. It is also unique in having so many of the less showy families as fully represented in species as the more beautiful favorites. For instance, the Clansilias, the Neritas, Marginellas, Columbellas and many more too numerous to mention, although small and varying little in form, are as fully represented in species as the larger and more popular families. This makes the collection peculiarly valuable from a scientific point of view. Then it is unique as to the varieties and extremely choice things it contains. For instance, the Conus gloria maris, which is if I remember rightly, a finer specimen than the one in the British Museum for which, Edgar Smith the Curator told me, they paid five hundred dollars, and which has been specially noted in conchological literature for over a hundred years. The Conus cervus, cedo-nulli, rhododendron and almost numberless others in that family are fine examples of rarity and beauty. The gem of the collection may be an especially fine Pleurotomaria beyrichii. Of this entire family only about twenty specimens belonging to

five species have been discovered, and of this species only seven are known in the world. Pleurotomaria Hirasei may be seen in this collection also. It is a very rare shell, of a beautiful ivory white, and golden yellow in color, while a magnificent red is the predominating color of Pleurotomaria beyrichii.

Then among those universal favorites, the Cypraeas; how many collectors can boast of a broderipi, a nivosa, a castanea, coxeni, crossei, similis, etc., etc., etc. Those of the whole world who can do so may be counted on the fingers of one hand. Then take the cabinet of spondylus, unique in its vast number of species, and wondeaful for its oriental richness of coloring, making it suggestive of a tropical flower garden. The collection is unique in having a larger number than any I have seen abroad or in this country, of polished Haliotis, especially of the two species that are the most beautiful of all the shells of California. The same may be said of the polished Unios which are wonderfully choice and fine. It is unique in having the largest number of a single species of rare Cypraea, showing in over a hundred specimens the grádual evolution of that most beautiful of American Cypraeas the Spadicea.

I will close by saying that I am firmly of the opinion, after browsing among collections in Europe and America for twenty years or more, that there cannot be seen a collection as rich in in beauty of specimens, in variety of species, and as tasteful in arrangement as that in your large cabinet, in the world today.

T. H. McCoy,
Chicago.



SPONDYLUS REGIUS

In the Williams Collection of Shells

THE WILLIAMS

Collection of Shells

A BRIEF ACCOUNT OF

THE CONCHOLOGICAL CABINET OF MRS. ALICE L. WILLIAMS

By

GEORGE HALCOTT CHADWICK, M.S.

Sometime Conchologist at Ward's Natural Science Establishment, Rochester, and later Zoologist to the New York State Museum.

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Mr. Chadwick, writer of this account of the Williams Collection of Shells, was for many years a practical worker in conchology in the largest establishment of its kind in this country. His scientific knowledge was supplemented by an exceptional opportunity for studying this special collection, every case being freely opened to him during the many days he gave to its examination. This careful study makes his report unusually thorough and illuminating.

CONTENTS

PAGE

I. Introductory 9

II. The Contents of the Collection 13

The Genera Represented 13

III. Notes on the Collection 27

1. Cephalopoda 27

2. Gastropoda 27

Murex 28

Trophon 36

Conus 43

Cypraea 57

Pulmonata 76

3. Amphineura 78

4. Scaphopoda 79

5. Pelecypoda 79

IV. Retrospect 87

The Williams Collection of Shells

I. INTRODUCTORY

In Mrs. Williams' early girlhood, a loved teacher observing the child's natural appreciation of the beautiful, gave her some common shells, with the expressed wish that she might gather about this modest nucleus a "truly remarkable" collection. The suggestion bore fruit, and the harvest is seen in this unique cabinet.

From the outset circumstances combined to make the cherished dream a reality. First was the exquisite attuning of mind and senses, evident even in childhood, that has steadily controlled her judgment in the selection and upbuilding of the collection. Then came the friendship and co-operation of the traveler, explorer, genius, and naturalist, the late Professor Henry A. Ward, who was never too busy to remember her collection. Again there was opportunity in more of leisure and means than is granted to many who dream, coupled with the indomitable persistence and determination of one who works as well as wishes. These characteristics brought to Mrs. Williams friendships among the noted conchologists and shell dealers of the world,—Sowerby, Campbell, Fulton, Roberts, Melvill, and others,—who

have taken a keen interest in offering her their choicest and most beautiful materials; so that the collection is a growing monument of patient industry, discriminating taste, rare judgment, and favorable opportunity. At the present moment (November, 1907) this collection contains *twenty-six thousand shells*, a number unexceeded I believe by any private shell cabinet in America since the days of John Jay. Among these specimens there are none which could be spared to advantage; each is individual and each is superlatively good.

It is said that every enthusiastic collector has a favorite group or genus,—a "hobby." One looks in vain for the outward sign of Mrs. Williams' hobby. Every family, every genus, seems to merit that distinction as its wealth of representation is realized. The rarest obtainable in every family are here. Yet there *is* a first love, that queen of molluscan families, the Cypraeidae, although no unwise partiality is displayed.

The rarest shells in the collection, the *delectae delectarum*, what are they? Shall we name *Spondylus regius*, *Conus gloria-maris*, or *Pleurotomaria beyrichii?* What of *Strombus thersites*, *Cancellaria cooperi*, *Argonauta grüneri*, *Rostellaria powisi* and *Cypraea broderipi?* The choicest treasures of many another collection, the Cypraea aurantia's, the rarest Volutas, and their like, take second place and are often represented by several specimens, all different. Many specimens

in the collection, among the Cones for example, range in cost from twenty to seventy-five dollars apiece. But where there are so many that are rare and costly, the selection of a few prominent names is difficult. It is invidious to the many to name a few. Looking from the opposite view-point, we find that no common species has been omitted or excluded. On the contrary, the common and well-known are represented by the finest specimens and fullest suites of variations. The best of the molluscan democracy are beside the aristocracy. There is thus a remarkably complete and select general collection. Indeed, it might be said of the marine shells that it were much easier to list the few missing forms than to catalogue those present. Many genera are complete, while other large ones lack but one or two species.

The full significance of Mrs. Williams' life-work appears when we add to this commanding array of typical and well-known forms (with rare and unmatchable things in all groups), many special series such as fine mutational suites and geographical assemblages, a large number of Tertiary fossils, particularly Cypraeidae, many newly-described land and fresh-water shells of Japan, a good showing of deep-sea species, the remarkable halolimnic forms from Lake Tanganyika and many other factors that usually mark a great museum collection built upon unlimited resources. No feature of pure conchological science that can find expression in a collection has been overlooked, indeed,

at every turn one is surprised by some new phase of the subject, perhaps before unthought of, and regrets the necessity which takes him at last from their contemplation. I speak as one who lived for years among shells and shell literature in the largest commercial scientific establishment in the country.

Turning at length regretfully away, there remains an impression of wonderful order and beauty of arrangement. There is many a clever device such as the use of small glass-topped boxes for the little specimens, and altogether there is exhibited an extraordinary synthesis of scientific appreciation and artistic taste.

The purpose of these pages is not mere gratulation, though the collection deserves that and more. Indeed, it merits as world-wide celebrity as the great collections of Jay, of Gould, of Newcomb, and of other renowned cabinet builders. It deserves a place in some great hall of science, and it is Mrs. Williams' hope that it may some day be thus installed through public or private munificence. My desire in this writing is to make this remarkable collection better known. It has been a labor of love, and I can wish for those who read no greater pleasure than to come under the fascinating spell of this great collection.

II. THE CONTENTS OF THE COLLECTION

Long lists of names are wearisome, yet being concrete and tangible, they offer the only convincing proof of the value of a scientific collection. To avoid the prolixity of a complete catalogue while exhibiting the scope of this collection, an alphabetical list of the *genera* represented is taken from Mrs. Williams' manuscript catalogue. This list is inadequate because many forms contained in the collection are catalogued under the broader generic terms of a few years ago, and also because a host of new shells,—whole collections in themselves,—have been added since the catalogue was written. Even without these additions, the list is a commanding one, and includes over seven hundred and fifty names.

THE GENERA REPRESENTED

Acanthinula
Acanthochites
Acavus
Achatina
Achatinella
Acmaea
Acme
Acmella
Acroptychia
Adacna
Adamsia
Adamsiella
Adelomorpha
Aetheria
Akera
Alaba
Albersia
Alcadia

Alcira
Alexia
Alvania
Alycaeus
Amiantis
Amnicola
Ampelita
Amphibola
Amphibulina
Amphidromus
Amphidoxa
Amphipeplea
Amphissa
Ampullaria
Amussium
Anaitis
Anapa
Ancilla
Ancylotus
Ancylus
Angitrema
Angulus
Anodonta
Anodontoides
Anoglypta
Anomalocardia
Anomia
Anostoma
Aplustrum
Aporrhais
Arca
Argobuccinum
Argonauta
Ariolimax
Arionta
Ariophanta
Asaphis
Ashmunella
Aspa
Aspergillum
Assiminea
Astarte
Astralium
Atlanta
Atys
Aulopoma
Auricula
Avicula
Axinus

Balea
Barbatia
Barleeia
Bathybembix
Bela
Bifidaria
Bithinella
Bithinia
Bittium
Blanfordia
Bothriembryon
Brechites

Broderipia
Buccinum
Buliminopsis
Buliminus
Bulimulus
Bulimus
Bulinus
Bulla
Bullia
Burtonia
Bythoceros

Caecilianella
Caecum
Caldwellia
Calliostoma
Callista
Calyptraea
Camaena
Camitia
Campeloma
Cancellaria
Cantharidus
Cantharus
Capulus
Cardita
Cardium
Carelia
Carinaria
Caryatis
Carychium
Caryodes
Cassidaria
Cassidula
Cassis
Castalia
Cataulus
Cepolis
Ceres
Ceratodes
Cerion
Cerithiopsis
Cerithium
Cernina
Cerostoma
Chama
Charopa
Chelidonopsis
Chione
Chiton
Chloraea
Chloritis
Chlorostoma
Choanopoma
Chondropoma
Chorus
Chrysodomus
Chrysostoma
Cionella
Circe
Circinaria
Cistula

Clanculus
Clathurella
Clausilia
Clavator
Clavatula
Clavella
Claviger
Clea
Clementia
Cleopatra
Clypidella
Clypidina
Cochlicopa
Cochlostyla
Coelaxis
Coelopoma
Colobostylus
Columbarium
Columbella
Columna
Cominella
Concholepas
Conus
Coptocheilus
Coralliophaga
Coralliophila
Corasia
Corbicula
Corbis
Corbula
Corbulomya
Corilla
Craspedopoma
Crenella
Crepidula
Crista
Cristaria
Crossopoma
Crucibulum
Cryptochiton
Cryptogamma
Cryptoplax
Crystallopsis
Cucullaea
Cuma
Cyamium
Cyathopoma
Cyclas
Cyclina
Cyclomorpha
Cyclophorus
Cyclops
Cyclostoma
Cyclostrema
Cyclosurus
Cyclotus
Cylichna
Cylindra
Cylindrella
Cylindromitra
Cyllene
Cymbium

Cypraca
Cypricardia
Cyprina
Cyrena
Cythara
Cytherea

Daphnella
Defrancia
Delphinula
Dentalium
Desmoulea
Diala
Dibaphus
Dione
Diplodonta
Diplommatina
Diplomphalus
Dipsaccus
Dipsas
Discina
Distorsio
Ditropis
Dolabella
Dolium
Donax
Dorcasia
Dosinia
Draparnaudia
Dreissensia
Drillia
Drymaeus

Eburna
Elizia
Endodonta
Engina
Ennea
Ensis
Epidromus
Epiphragmophora
Erato
Ethalia
Eucalodium
Euchelus
Eudesia
Eulima
Eulota
Euplecta
Eupleura
Euthria
Eutrochatella

Fasciolaria
Faunus
Ferussacia
Fissurella
Fistulana
Flammulina
Fluminicola
Fulgur
Fusus

Ganesella
Gari
Gastrodonta
Gena
Genotia
Geomitra
Georissa
Gibbula
Gibbus
Glessula
Glycimeris
Glyphis
Glyphostoma
Glyptostoma
Goniobasis
Gouldia
Gundlachia

Halia
Haliotis
Haminea
Harpa
Helcion
Helcioniscus
Helicarion
Helicella
Helicigona
Helicina
Helicodiscus
Helicodonta
Helicomorpha
Helicophanta
Helicostyla
Helix
Hemicardium
Hemifusus
Hemiglypta
Hemimactra
Hemiplecta
Hemisinus
Hemitrichia
Hemitrochus
Heteropoma
Heuropis
Hiatula
Hinnites
Hipponyx
Hippopus
Hirasea
Hirasiella
Holospira
Horea
Hyalina
Hybocystis
Hydatina
Hydrobia
Hydrocena
Hygromia
Hypselostoma
Hyriopsis

Ianthina

Imbricaria
Io
Iopas
Iphigenia
Iridina
Isanda
Ischnochiton
Isocardia

Janulus
Jouannetia

Kaliella
Katharina
Kellia
Kraussina
Kuphus

Labyrinthus
Lagocheilus
Laimodonta
Lamellaria
Lanistes
Laoma
Laqueus
Latiaxis
Latirus
Lazaria
Leda
Leiopyrga
Leiostraca
Lepeta
Leptaxis
Leptinaria
Leptoconchus
Leptolimnaea
Leptopoma
Leptopomatoides
Leptothyra
Leptoxis
Leucochroa
Leucozonia
Lia
Libitina
Liguus
Lima
Limax
Limicolaria
Limnaea
Limnophysa
Limnotrochus
Lingula
Liocardium
Lioconcha
Liotia
Lithodomus
Lithotis
Littorina
Littorinella
Livona
Loripes
Lottia

Lucapina
Lucidella
Lucina
Lyonsia
Lyria
Lysinoe

Macandrewia
Macha
Macoma
Macroceramus
Macrochlamys
Macron
Mactra
Mactrella
Magilus
Malea
Malleus
Mandarina
Mangilia
Margarita
Margaritana
Marginella
Marinula
Marisa
Martesia
Megalommastoma
Megaspira
Megatebennus
Melampus
Melania
Melanopsis
Melantho
Melapium
Meleagrina
Melo
Melongena
Mercenaria
Meretrix
Meroe
Mesalia
Microcystina
Microphysa
Milneria
Miratesta
Mitra
Modiola
Modiolaria
Modulus
Monoceros
Monodonta
Monothyra
Montacuta
Mopalia
Mulleria
Murex
Mutela
Mya
Myodora
Mytilimeria
Mytilus

Nacella
Nanina
Nassa
Nassopsis
Natalina
Natica
Nautilus
Navicella
Neomphalus
Neothauma
Neptunea
Nerita
Neritina
Nesopupa
Netastomella
Neverita
Norrisia
Northia
Nucula

Obba
Odostomia
Oleacina
Oliva
Olivancillaria
Olivella
Omphalina
Omphalotropis
Oniscia
Onithochiton
Opeas
Ophicardelus
Opisthostoma
Orthalicus
Oscilla
Ostodes
Ostrea
Otesia
Otopoma
Otostomus
Ovula
Oxychona
Oxynoe
Oxystyla
Oxytes

Pachycheilus
Pachystyla
Pagodus
Paludina
Paludomus
Panda
Pandora
Panopaea
Papuina
Parallelipipedum
Paramelania
Parapholas
Pararhytida
Parastarte
Parmophorus
Partula

Paryphanta
Patella
Pecten
Pectunculus
Pedicularia
Pedinogyra
Pedipes
Pedum
Penitella
Perideriopsis
Perideris
Peristernia
Perna.
Persona
Petricola
Pharella
Pharus
Phasianella
Phasianotrochus
Phasis
Philine
Pholadidea
Pholadomya
Pholas
Phos
Physa
Physella
Physopsis
Pineria
Pinna
Pirenella
Pisania
Pisidium
Placenta
Placostylus
Placuna
Placunanomia
Planaxis
Planispira
Planorbis
Plecotrema
Plectopylis
Plesiotrochus
Pleurocera
Pleurodonte
Pleurotoma
Pleurotomaria
Plicatula
Poecilozonites
Polinices
Polygyra
Polygyratia
Polygyrella
Polymita
Pomatias
Pompholyx
Porphyrobaphe
Potamides
Potamopyrgus
Praticolella
Priotrochus
Pristiloma

Proserpina
Proserpinula
Psammobia
Psephis
Pseudachatina
Pseudohyalina
Pseudomurex
Pseudopartula
Pseudopythina
Pterocera
Pterocyclus
Punctum
Pupa
Pupilla
Pupina
Pupinella
Pupisoma
Purpura
Pusionella
Pyramidella
Pyramidula
Pyrochilus
Pyrula
Pythia

Quadrula

Ranella
Rapa
Rapana
Raphaulus
Realia
Retusa
Reymondia
Rhachis
Rhodea
Rhysota
Rhytida
Ricinula
Rictaxis
Rissoia
Rissoina
Rostellaria
Rotella
Rotula
Ruma
Rumina

Sagda
Sanguinolaria
Saulea
Saxicava
Scalaria
Scaphander
Scapharca
Scarabus
Schiaschila
Scintilla
Scrobicularia
Scurria
Scutus
Segmentina

Selenites
Semele
Separatista
Senilia
Sigaretus
Siliqua
Siliquaria
Simnia
Sipho
Siphonalia
Siphonaria
Siphonodentalium
Sistrum
Sitala
Solarium
Solaropsis
Solemya
Solen
Somatogyrus
Spatha
Sphaerium
Spiraculum
Spiraxis
Spiropoma
Spirula
Spisula
Spondylus
Standella
Stenogyra
Stenopus
Stoastoma
Stomatella
Streptaulus
Streptaxis
Streptostyla
Strigilla
Strobilops
Strombus
Strophocheilus
Struthiolaria
Stylifer
Stylodonta
Subemarginula
Subulina
Succinea
Sunetta
Surcula
Syndesmya
Syrnola
Syrnolopsis

Tagelus
Talona
Tanganyikia
Tapes
Tatea
Tectarius
Tegula
Tellina
Tenagodus
Terebellum
Terebra

Terebralia
Terebratalia
Terebratella
Terebratulina
Tetraplodon
Thecalia
Thecidium
Thersites
Thysanophora
Tivela
Tomichia
Tomocyclus
Tonicia
Torinia
Tornatellina
Tornatina
Trachycystis
Tralia
Tresus
Trichodiscus
Trichotropis
Tricula
Tridacna
Triforis
Trigonia
Trishoplita
Triton
Tritonidea
Trivia
Trochatella
Trochiscus
Trochomorpha
Trochus
Trophon
Truncaria
Truncatella
Tudicla
Tudora
Tugonia
Turbinella
Turbo
Turbonilla
Turcicula
Turricula
Turritella
Tylodina
Typhis
Typhobia

Umbonium
Umbraculum
Umbrella
Unio
Urosalpinx

Vallonia
Valvata
Vanganella
Vanikoro
Vasum
Velutina
Venerupis

Venus
Vermetus
Vertigo
Vitrea
Vitrina
Vitrinozonites
Vivipara
Vola
Voluta
Volutharpa
Volutopsis
Volvatella
Vulsella

Waldheimia

Xenophora
Xenothauma
Xesta

Yoldia

Zemira
Zenatia
Zingis
Zirphaea
Zizyphinus
Zonites
Zonitoides

The greatest possible diversity in numbers exists among these genera. Some, like Megalatractus, are monotypic, while in others the specific representation runs into the hundreds. Thus, under the old designation "Helix" are included over five hundred and fifty specific names in this catalogue, while such genera as Cypraea, Conus, and Mitra, are represented by three or four hundred species each. The total specific representation is very nearly ten thousand.

III. NOTES ON THE COLLECTION

No words can do justice to the Williams Collection of Shells; it must be seen to be appreciated, yet deep impression is made by certain individual objects, groups, and families that are here presented in the order of the Ward Catalogue classification.

1. *CEPHALOPODA.* Not many Cephalopods are shell bearing, which increases our interest in those that are. Especially is this true of the graceful and delicate "egg-nests" of the Argonauts. Here is a ten and three-quarters inch *Argonauta argo*, perhaps the largest specimen ever taken among the large paper-Nautili. Each member of this family is a gem, but the trained eye singles out the *Argonauta grüneri*,—the rarest of them all,—a fine specimen from the Marquesas Islands.

Here also is a *Nautilus pompilius* believed to be the largest specimen known. Many other lovely specimens, with their dainty nacre, represent this and the allied species, besides a goodly number of the fossil AMMONITIDAE, curious of shape and resplendent in pearl.

2. *GASTROPODA.* Here we come first to the MURICIDAE, a rich and varied family, known well to

few collectors, because the acquisition of fine specimens and of the rarer species is very difficult, A list of the species of *Murex* represented is given because it goes far to show the fullness of this collection in forms unknown by sight to the average conchologist. Material recently added is not included in the list.

MUREX

acanthopterus, Lam. Australia
aciculatus, Lam. Channel Is.
aculeatus, Lam. Moluccas (very rare)
aduncospinosus, Beck. Hong Kong
aduncus, Sowb. Japan
adustus, Lam. Singapore, Australia
alveatus, Kiener. Florida
angasi, Crosse. Port Jackson, Australia
angularis, Lam. West Africa
anguliferus, Lam. Red Sea
anguliferus, Lam. var. Indian Ocean
antillarum, Sowb. West Indies
approximatus, Sowb. Philippines
aquatilis, Reeve. West Indies
axicornis, Lam. Indian Ocean

babingtoni, Sowb. South Africa
balteatus, Beck. Philippines
banskii, Sowb. Moluccas, Indian Ocean
bednalli, Angas. South Australia (Extremely rare, only two specimens known.)
bellus, Reeve, chrysostoma, Gray. Gulf of Mexico
benedictus, Melv. Lifu

bicolor, Val. Lower California
bifasciatus, A. Ad. Cape de Verde Is.
birileffi, Lischke. Japan
blainvillei, Payr. Malta
bombayensis, Melv. Bombay
bourgeoisi, Tourn. West Africa
brandaris, Linn. Naples, Italy
brassica, Lam. Gulf of California
breviculus, Sowb. New Caledonia
brevifrons, Lam. Indian Ocean
brevispina, Lam. Hong Kong
buxeus, Brod. Peru

cabritti (typical), Bern.
cailleti, Petit. West Indies
calcitrapa, Lam. West Coast America, Indian Ocean
caledonicus, Jouss. New Caledonia
californicus, Hinds. California
capensis, Sowb. Algoa Bay
capucinus, Lam. Torres Straits
capucinus, var. Lam. Luzon, Philippines
carbonieri, Jouss. Aden
cervicornis, Lam. Australia
chrysostoma, Gray. West Indies
cinereus, Say. Florida, Massachusetts
circumtextus, Stearns. Monterey, Cal.
clavus, Kiener. Philippines
cochlidium. Florida
concinnus, Reeve. East Indies
contractus, Reeve. Kurachi
corallinus, Lk. Mediterranean

corallinus, var. minuta, Desh. Palermo
cornutus, Linn. West Africa
crassilabrum, Gray. Peru
craticulatus, Brocchi. Naples
crawfordii, Sowb. South Africa
crenifer, Montr. New Caledonia
cristatus, Brocchi. Naples, Italy
crocatus, Reeve. West Indies
cumingii, A. Ad. Mauritius
cyclostoma, Low. Punta-Balabac, I. Balabac

despectus, A. Ad. New Caledonia
diadema, Benoit. Naples
dilectus, A. Ad. Florida
dubius, Sowb. Panama

edwardsi, Payr. Mediterranean
elegans, Beck. West Indies
elongatus, Lam. Hong Kong
emarginatus, Sowb. Japan
endivia, Lam. Philippines
erinaceus, Linn. Mediterranean
erinaceus, Linn. juv. Mediterranean
erinaceus, Linn. var. tarentina, Lam. Mediterranean
eudaemonis, Smith. Japan
eurypteron, Reeve. Japan

falcatus, Sowb. Japan
fasciatus, Sowb. West Africa
fenestratus, Chem. Mauritius
festivus, Hinds. California

fimbriatus, Hinds. Philippines
fimbriatus, Hinds var. luculentus, Reeve
foliatus, Mart. China, etc.; San Pedro, California, 15 to 25 fathoms
formosus, Sowb.

gallinago, Sowb. (A new species from Japan, recently described in the Annals and Magazine of Natural History, 1904.)
gemma, Reeve. California
gracillimus, Stearns. California
gracillimus, Stearns small var. Santa Catalina Is.
gubbi, Kiener. West Africa

hanleyi, Angas. Australia
haustellum, Linn. Torres Straits, Australia
hemphilli, Dall. Florida
hexagonus, Lam. Panama
hybridus, Araclus. West Coast of Africa

imbricatus, Smith. New Caledonia
imperialis, Sowb. West Indies
incisus, Brod. California
interfossus, Cpr. California
interfossus, Cpr. var. California

kieneri, Reeve. South Africa

laciniatus, Mart. Straits of Magellan
lamberti, Poirier. New Caledonia
linguaverrucina, Chem. West Africa
luridus, Midd. California

luridus, Midd. slender var. Monterey, California
luridus, var. munda, Cpr. Vancouver
luridus, var. aspera, Baird. Vancouver
lyratus, A. Ad. Cape de Verde Is.
lyratus, A. Ad. var. Cape de Verde Is.

macgillivrayi, Dohrn. N. E. Australia
malabaricus, Smith. Andaman Is. (very rare)
martinianus, Reeve. Hong Kong
maurus, Brod. Philippines
megaceros, Brod. West Africa
melanomathus
messorius, Sowb. Japan, West Indies, West Africa
messorius, var. rubidum, Dall. St. Domingo
mexicanus, Reeve. Florida
microphyllus, Lam. Philippines
miliaris, Gmel. West Africa
mitraeformis, Sowb. Algoa Bay
monachus, Crosse. Japan
monodon, Sowb. Torres Straits, Japan, Australia
monodon, Sowb. var. Australia
monodon, Sowb. var.
} A white and a brown specimen. The largest known. "A matchless pair," says Mr. G. B. Sowerby.
multicrispatus, Dunker. Peru
multangulus, Philippi. Florida

nigrescens, Chem. Panama
nigrispinosus, Reeve. Japan, Indian Ocean
nigritus, Phil. Panama, Mazatlan,
nitidus, Brod. Mazatlan,
nuceus, Mörch. Florida

From Mr. Henry Hemphill, California

Cerostoma—

nuttalli, Conr. San Pedro Bay, California
nuttalli, Conr. var. broad banded. California
nuttalli, Conr. var. narrow white. California
nuttalli, Conr. var. narrow banded. California
nuttalli, Conr. var. narrow dark. California
nuttalli, Conr. var. small, slender. Todos Santos Bay, Cal.
nuttalli, Conr. var. monoceros. Lower California

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occa, Sowb. China
octagonus, Quoy. New Zealand
oculatus, Reeve. Bahamas

palma-rosae, Lam. Indian Ocean
palma-rosae, Lam. juv. Indian Ocean
palmiferus, Sowb. New South Wales
pavia, Crosse. South Australia
pellucidus, Reeve. Hong Kong (J. F. Quadras)
penchinati, Crosse. New Caledonia
pinnatus, Wood. Hong Kong
plicatus, Sowb. Gulf of California
pliciferus, Sowb. Japan
plorator, Adams and Reeve. Japan (very rare)
pomum, Gmel. Florida
ponderosus, Chem. Ceylon
poulsoni, Nutt. California
princeps, Brod. Panama
pudoricolor, A. Ad. St. Domingo
pumilis, A. Ad. Mauritius
purpuroides, Dunker

quadrifrons, Frauenfeld. Gibraltar
quadrifrons, Frauenfeld var. South Seas

radix, Gmel. Panama
radix, Gmel. var. Mazatlan
ramosus, Linn. Zanzibar, Fiji Is.
ramosus, var. Red Sea
rarispina, Lam. Indian Ocean
rectirostris, Wood. Hong Kong
recurvirostris, Brod. Panama
regius, Wood. Panama
rorifluus, Ad. and Reeve. Japan
rosarium, Chem. West Africa
rota, Sowb. ("The largest and finest pair known," G. B. Sowerby. From an old collection.)
rota, Sowb. Indian Ocean
rubiginosus, Reeve
rufus, Lam. Bahamas, Florida
rufus, Lam. var. intermedia. Bahamas
rufus, Lam. var. florifer, Reeve. Bahamas
rufus, Lam. var. Gulf of California

salebrosus, King. Peru
salleanus, A. Ad. St. Domingo, W. I.
saulae, Sowb. Philippines
saxatilis, Lam. Indian Ocean
scalarinus, Biv. Mediterranean
scolopax, Dillw. Persian Gulf
scorpio, Linn. Moluccas
scrobiculatus, Dunker
secundus, Lam. Ceylon

senegalensis, Gmel. Japan
similis, Sowb. Marie-Galante
sinensis, Reeve. Japan
speciosus, A. Ad. Japan
spinicostatus, Val. West Indies
spinosus, A. Ad.
stainforthi, Reeve. Australia
steeriae, Reeve. Marquesas Is.

talienwanensis, Crosse. China
tenuispina, Lam. Japan, Moluccas
ternispina, Lam. Japan
tetragonus, Brod. Mediterranean
tornatus, Brod. West Columbia
torrefactus, Sowb. China
torsus, Lam. Mediterranean
trialatus, Sowb. Lower California
tribulus, Linn. Red Sea
trifariospinosus, Chem. Gibraltar
triformis, Reeve. Australia
trigonulus, Lam. Persian Gulf
tripterus, Born. Moluccas
triqueter, Born. Pacific Ocean
troscheli, Lischke. Japan
trunculus, Linn. Mediterranean
turbinatus, Lam. Senegambia

uncinarius, Lam. Cape of Good Hope
umbilicatus, T. Woods. Tasmania

varicosus, Sowb. Red Sea

varius, Sowb. West Africa

zealandicus, Quoy and Gaim. New Zealand (very rare)

To this long list must be added fossil forms, as *Murex tripteroides*, Lamarck, from the Calcaire grossier of Chaussy, France, and *M. brandaris* from the Pliocene of Niciola, Italy; but even so, there is given only a small portion of the family of the Muricidae as here exhibited, with its forty or more genera and subgenera.

Here is the list of Trophon:

TROPHON

ambiguus, Phil. New Zealand

belcheri, Hinds. San Diego, California
brazieri, T. Woods. Tasmania
brevispira, Marts. South Georgia

corrugatus, Reeve
clathratus, Müll. Finmark
clathratus, Müll. var. gunneri, Lov.
craticulatus, Fabr. Greenland
cretaceus, Reeve. New Zealand

fabricii, Beck. Newfoundland
fimbriatus, Hds. Sts. Maccason
flindersi, Ad. and Ang. Tasmania

geversianus, Pallas. Patagonia, Terra del Fuego
geversianus, Pallas, var. lirata, Kobelt. Magellan Straits

multicostatus, Esch. Finmark.
muricatus, Mtg. Britain

nodifera, Powis. Gulf of California

orpheus, Gould. Vancouver Is.

pachyraphe, Smith. Japan
petterdi, Crosse. Tasmania
philippianus, Dunker. Falkland Is.

scalariformis, Gould. Spitzbergen
spiratus, A. Ad. New Zealand
strangeri, Gray. New Zealand

triangulatus, Cpr. California (very rare)
truncatus, Ström. Britain

vaginatus, Jouss. Sicily

xanthostomus, Brod.

Besides which one notes the interesting genera *Pseudomurex* (*P. lamellosus*, Phil. and *meyendorffi*, Calc.) and *Typhis* (*T. tetrapterus*, Bronn and *yatesi*, Crosse, the latter quite rare); here also are *Urosalpinx*, *Eupleura*, seventy-five species of *Purpura*, over twenty of *Ricinula*, together with *Iopas*, *Monoceros*, *Chorus*, *Concholepas*, *Cuma*, *Rapana*, *Coralliophila*, *Melapium*, *Rapa*, *Magilus*, etc.

The fossil *Ecphora quadricostata* from the Virginia Miocene is noteworthy; and beside it the strangely similar and remarkable recent shell *Latiaxis mawae* from

Hong Kong, a great rarity, as are also *Latiaxis japonica*, Dunker, and *Separatista grayi* from South Africa

The series of *Purpura crispata* and its thirty-seven variations,—two specimens of each,—from the West Coast, well deserves mention. Mr. Henry Hemphill, their collector, wrote: "I have arranged these shells to show the relations of the sculpturing to the color, beginning with the foliated forms and ending with the small globose varieties, making them unique in that respect. This, I think, the finest series of *Purpura crispata* and its varieties, east of the Rocky mountains with possibly two exceptions."

The TRITONIDAE show some eighty species, including *Triton waterhousei*, *Priene oregonensis* (a specimen covered with shells of the brachiopod *Terebratalia transversa*), *Epidromus obscurus* and *convolutus*, *Ranella candissata*, and *Aspa laevigata*. Of the FUSIDAE there are also about eighty kinds, among them two of the rarest of British species, and the scarce *Latirus bairstowi* from Algoa Bay. The genera represented include, beside *Fusus* and *Latirus*, *Clavella*, *Megalatractus*, *Fasciolaria*, *Peristernia* and *Leucozonia*. The BUCCINIDAE are represented by the wide range of nineteen genera and nearly a hundred species. There is a very large and fine *Buccinum leucostoma*, besides *B. hirasei*, *Euthria ponsonbyi*, *Cyllene orientalis* and *Chrysodomus poecilochroa* and *tabulata*, with the fossil *Ch. contrarius*.

In attempting to convey an impression of this collection, it is impossible not to dwell upon numbers,—in fact, one is constantly surprised that so many species of shells exist. Yet, Mrs. Williams says she has "cared less to increase the number of species in the collection, than to get numerous specimens showing all the variations of form and coloring found in each species, and to be sure that each new specimen was the best obtainable." It is testimony then to her patient industry that even the number of species so constantly challenges our admiration. There are one hundred and eighty-four kinds of the elusive little NASSIDAE! Contempt for their diminutiveness vanishes when we look closer at *Nassa* (and its subgenera), with such noteworthy things as *N. hypolia* from Japan, and the two deep-water species *N. analogica* and *N. desmoulinoides* from South Africa. There are *Northia*, *Truncaria*, *Bullia*, *Desmoulea* and *Cyclops* (*Neritula*).

Turbinella and *Vasum*, constituting the TURBINELLIDAE, small genera but of large stature, are quite completely represented. The VOLUTIDAE again rejoice in numbers and in beauty. They are so charming that no praise can do them justice, and it would be difficult to duplicate them in a lifetime. These are aristocratic shells,—scarcely one of them to be called common, and almost any *Voluta* might well be the boast of a collector. But here they *all* are, a gathering of notables to furnish a week's revel for the ardent shell-lover.

Of the seventy-six species of *Voluta* in the collection, only these will be here specified:

Voluta africana
" aulica
" brasiliana
" bullata
" concinna
" cymbiola
" flavicans
" grayae
" jamrachi
" laevigata
Voluta mamilla
" megaspira
" ponsonbyi
" pulchra
" roadnightae
" rossiniana
" thatcheri
" thyrella
" virescens

The exquisite and rare varieties of *V. musica* (*carneolata*, *guiniaca*, *sulcata*, etc., etc.) should be noted; and a *V. vespertilio* believed to be the largest and finest known of its species. *Melo*, *Cybium* and *Lyria* are fully represented by some thirty other species, the seven species of *Lyria* being all of the greatest rarity. A magnificent pair of *Melo aethiopica*, from the collection of Lord Ashbrook, an Irish peer who died only a few years ago, commands especial admiration.

Pausing again at the MITRIDAE, one single tiny specimen of which cost much more than its weight in gold, there are found three hundred, and seventy species and varieties of *Mitra* and *Turricula*, and nearly all are extremely beautiful. These dainty small forms

are gathered so slowly after the first fifty species, that this great representation is marvelous. Here is the extremely rare *Mitra zonata*, the most precious shell ever found in the Mediterranean. Mrs. Williams' specimen is a fine one, two and five-eighths inches in length. And here are *M. angustata*, *belcheri*, *chrysalloidea*, *lamarcki*, *coccinea*, *fischeri*, *fulgurata*, *lineata*, *lubens*, *pullata*, *rupelli*, *schombergi*, *verrucosa*, with scores of others of great beauty, and of very much more than passing interest to the connoisseur.

Exceedingly attractive also are the little MARGINELLIDAE, and of these (*Marginella* and *Erato*) there are two hundred kinds in the collection, including *Marginella deoduchus*, *pyrum*, *umbiculata*, *bairstowi*, and others that are extremely rare.

A hundred species of "Olive shells" (OLIVIDAE) await admiration. There is a fine large *Ancilla cingulata*, the largest of its race and probably the largest specimen, besides *A. contusa*, *optima*, *tankervillei*, *lienardi*, and a score of other *Ancillae*.

The species of *Oliva* and *Olivella* shine conspicuously in fine assemblage, and near them are their cousins the "Harps," a complete family almost overshadowing their relatives. Among these is a unique variety of *Harpa rosea* and a young specimen of *Harpa nobilis* in color like the former species. Here as always it is the fullness of individual variation and the beauty and

perfection of individual specimens that awaken special admiration. One longs for an artist to reproduce in color those seventy-five beautiful specimens of the nineteen known forms of this genus.

The COLUMBELLIDAE,—one hundred and ninety species, down to Sowerby's new little *Columbella filmerae* from Pondoland. Perhaps some of the described forms are missing, but who will affirm it? In this hasty survey, they must be slighted,—but here they have not been slighted, and one sees with delight their delicate beauty and special attractiveness.

The "Cones" (CONIDAE) command attention, with *Conus gloria-maris* enthroned in their midst. Let us not say what it cost,—one need know but little of shells in order to guess,—but there are many others in the collection whose prices ranged from twenty to forty-five dollars apiece. Here also is the very rare *Conus cervus*, a fine specimen three and three-quarter inches long,—a species of which the British Museum specimen, the pride of that collection, cost $500. A beautiful pair of *C. rhododendron* are among other gems in the cabinet. The entire list of this family, three hundred and twenty-five species in the collection, is here given. There are probably half as many more specimens, showing variation in size and color.

CONUS

abbas, Hwass. Indian Ocean
abbreviatus, Nutt. Sandwich Is.
achatinus, Chem. Ceylon
aculeiformis, A. Ad. and Reeve. China
acuminatus, Hwass. Aden
acutimarginatus, Sowb. (verrucosus, Hwass, var.) Florida
acutangulus, Hwass. Philippines
andamanensis, Smith. Andaman Is.
adansoni, Lam. Aden
adansoni, Lam. var. jamaicensis, Hwass
adansoni, Lam. var. bruguieri, Kiener. West Africa
adustus, Sowb. Aden
aegrotus, Reeve. Philippines
africanus, Kiener. Africa
africanus, Kiener, var. duponti, Kiener. W. Africa
albomaculatus, Sowb.
algoensis, Sowb. South Africa
alveolus, Sowb. Moluccas
amadis, Martini. East Indies, Ceylon
ambiguus, Reeve. West Africa
ammiralis, Linn. Moluccas (very rare)
ammiralis L. granulated var. Indian Ocean
anceps, A. Ad. Moluccas
anemone, Lam. South Australia
anemone, Lam. var. maculatus, Sowb. Lord Howe Id.
anemone, Lam. var. novae-hollandiae, A. Ad. Australia
anemone, Lam. var. alba. Victoria, Australia
aplustre, Reeve. Australia
araneosus, Hwass. Philippines

arachnoideus, Gmel. Andaman Is.
archiepiscopus, Hwass. Solomon Is.
architalassus, Dillw. Moluccas (very rare)
arctispira, Pils. Japan
arenatus, Hwass. Aden, Ceylon
aristophanes, Duclos. Galapagos Is.
articulatus, Sowb. Mauritius
augur, Hwass. East Africa
aulicus, Linn. Ceylon
aurantius, Hwass. Moluccas (very rare)
auratus, Lam. Ceylon
aureus, Hwass. Amboina
aurisiacus, Linn. Moluccas (very rare)
australis, Chem. Hong Kong

bairstowi, Sowb. South Africa (very rare)
balteatus, Sowb. W. Africa
bandanus, Hwass. Algoa Bay
bandanus, Hwass, var. Polynesia, E. Indies
betulinus, Linn. Singapore
betulinus, Linn. var. suratensis, Hwass. Singapore
blainvillei, Kiener. Polynesia
boeticus, Reeve. Philippines
boeticus, Reeve, var. rivularis, Reeve. Philippines
broderipi, Kiener. South Africa
brunneus, Gray. Panama

cabriti, Bernard. New Caledonia (rare)
californicus, Hinds. San Diego, California
californicus, Hinds, juv. San Diego, California
cancellatus, Hwass. Hong Kong

canonicus, Hwass. Philippines
capitaneus, Linn. South Sea
capitaneus, Linn. var. mustellinus, Reeve. East Indies
cardinalis, Hwass. West Indies
catus, Hwass. Aden, Tahiti
cedo-nulli (Hwass) Kiener. West Indies (very rare)
centurio, Born. (very rare)
cernicus, A. Ad. Mauritius
cervus, Lam. Red Sea
ceylonensis, Hwass. Australia
ceylonensis, Hwass var. propinquus, Smith
ceylonicus, Chem. Ceylon
characteristicus, Chem. Loo Choo, Indian Ocean
chenui, Crosse. New Caledonia (rare)
cinctus, Swain. Mauritius
cinereus, Hwass. Moluccas
circae, Sowb. (magnus, Linn., var.) Philippines,
circumcisus, Born. Moluccas (very rare)
classiarius, Hwass. Red Sea
clavus, Linn. Philippines
cleryi, Reeve. West Indies
coccinea, Gmel.
coffea, Gmel. Central America
collisus, Reeve. Moluccas
colubrinus, Lam. Mauritius (very rare)
columba, Hwass. West Indies
concolor, Reeve
conspersus, Reeve. Moluccas
consors, Sowb. Moluccas, Amboina
corbula, Sowb. Ceylon
cordigera, Sowb. Philippines

coromandelianus, Smith. Bay of Bengal (rare)
crassus, Sowb. Kurachi
crocatus, Lam. Moluccas (very rare)
crosseanus, Fischer. New Caledonia (very rare)
cuneiformis, Smith
cuvieri, Crosse. Red Sea, Aden
cylindraceus, Brod. Pacific Ocean

dalli, Stearns. Gulf of California
daucus, Hwass. West Indies
deburghiae, Sowb. Moluccas
deshayesi, Reeve. Red Sea
deshayesi, Reeve rare color var.
desidiosus, A. Ad. (mercator, Linn., var.) West Africa
dillwyni, Reeve. Red Sea
distans, Hwass. Philippines
d'orbignyi, Aud. Hong Kong (rare)

eburneus, Hwass. Ceylon
eburneus, Hwass odd var. Amboina
elegans, Swain.
elongatus, Chem. South Africa
elisae, Kiener. Madagascar (very rare)
emaciatus, Reeve. Philippines
encaustus, Kiener. Marquesas Isles
episcopus, Hwass. Indian Ocean
epistomium, Reeve. Indian Ocean
ermineus, Born. India
erythraeensis, Beck. Red Sea
erythraeensis, Beck var. dilwyni, Reeve. Somali Coast
eximius, Reeve. Moluccas

fasciatus, Mar. Moluccas
figulinus, Linn. Ceylon
figulinus, Linn. var. Ceylon
flammeus, Linn. Africa
flavescens, Gray. Bahamas
flavidus, Lam. Aden, Mauritius
flavidus, Lam. var. maltzanianus, Weink. Philippines
floccatus, Sowb. Kingsmill Is. (very rare)
floridanus, Gabb. Florida
fulgetrum, Sowb. Loo Choo Is.
fulmen, Reeve. Japan
fumigatus, Hwass. (coffea, Chem., var.) Red Sea
fuscatus, Lam.
fuscolineatus, Sowb. (Only 5 specimens are said to be known.) Sierra Leone

gabrieli, Kiener. Philippines
gabrieli, Kiener var. Moluccas
generalis, Linn. Singapore
genuanus, Linn. Marquesas Is. (rare)
geographus, Linn. Indo-Pacific
geographus, Linn. var. mappa, Crosse. Philippines
gladiator, Brod. Central America
gloria-maris, Chem. Moluccas (extremely rare)
glans, Hwass. Indian Ocean, Moluccas
glans, Hwass var. tenuistriatus, Sowb. Philippines
glaucus, Hwass. Moluccas
graffei, Crosse. Upolu
granifer, Reeve. China
granulatus, Linn. Ceylon, W. Indies
gubbae, Kiener. Moluccas

gubbae, Kiener var. Moluccas
gubernator, Hwass. Solomon Is.
guinaicus, Hwass. West Africa
guttatus, Kiener. Arabian Gulf

hebraeus, Linn. Africa
hebraeus, Linn. var. vermiculatus, Lam.
hieroglyphicus, Ducl. Curacao
hepaticus, Kiener
hwassi, A. Ad. Mauritius
hyaena, Lam. (mutabilis, Chem., var.) Indian Ocean
hybridus, Kiener var. West Africa

imperialis, Linn. Mauritius
imperialis, Linn. var. Indian Ocean
imperialis, Linn. var. viridulus, Lam. Mauritius
infrenatus, Reeve. West Africa
inscriptus, Reeve. Aden
intermedius, Reeve. Sandwich Is.

janus, Hwass. Cochin China
jukesi, Reeve. North Australia

keati, Sowb. Red Sea, Seychelles (very rare)

laciniatus, Kiener
lacteus, Kiener. Moluccas
lamarckii, Kiener. South Africa
largilliertii, Kiener. W. Indies
lautus, Reeve. Natal
legatus, Lam. Indian Ocean
lentiginosus, Reeve. Bombay

legravei, Gatliff. Victoria
leoninus, Chem. Gulf of Mexico
lienardi, Bernardi. New Caledonia
lignarius, Reeve. Ceylon
lignarius, Reeve var. furvus, Reeve. Philippines
linceus, Sowb. New Caledonia (very rare)
lineatus, Chem. Indo-Pacific
literatus, Linn. East Indies
literatus, Linn. var. Ceylon
lithoglyphus, Meuschen. East Indies
lividus, Hwass. Sandwich Is.
lividus, Hwass var. citrinus, Hwass. Indian Ocean
lorenzianus, Chem. West Indies
loiroisii, Kiener. Amboina
loveni, Krauss. (tinianus, Hwass, var.) South Africa
lucidus, Mawe. Panama
luctificus, Reeve. Aden (rare)

maculatus, Sowb. Australia
magnificus, Reeve. Philippines
magus, Linn. Amboina, Philippines, Ceylon
magus, Linn. var. Ceylon
magus, Linn. var. rollandi, Ben. Australia
magus, Linn. var. borneensis, Sowb. Borneo
magus, Linn. var. ustulatus, Reeve. Philippines
magus, Linn. var. epistomium, Reeve
magus, Linn. var. metcalfei, Reeve. Philippines
mahogani, Reeve. Panama
malaccanus, Hwass. Ceylon
maldivus, Hwass. Maldive Is.
maltzanianus, Weink. Indian Ocean

marmoreus, Linn. Polynesia, East Indies
marmoreus, Linn. var. East Indies
marmoreus, Linn. var. South Africa
mediterraneus, Hwass. Mediterranean Sea
mediterraneus, Hwass var. flammulatus, Hwass. Naples
mediterraneus, Hwass var. oblongus, Hwass. Mediterranean
mercator, Linn. West Indies
mercator, Linn. var.
miles, Linn. Algoa Bay
miles, Linn. var. Mauritius
miliaris, Hwass. Mauritius
millepunctatus, Lam. Ceylon
mindanus, Hwass. Philippines
minimus, Linn. South Pacific
miser, Boivin. Africa
mitratus, Hwass. Island of Ticao (very rare)
monachus, Linn.
monile, Hwass. Singapore
mucronatus, Reeve. New Britain
mus, Hwass. West Indies
musicus, Hwass. Philippines
mustelinus, Reeve. East Indies
mutabilis, Chem. Bombay

nanus, Brod. Red Sea
natalensis, Sowb. Natal (very rare)
nebulosus, Sol. West Indies
nebulosus, Sol. var. Indian Ocean
nemocanus, Hwass. Aden, Borneo
nemocanus, Hwass var. Moluccas
nemocanus, Hwass var. laevigatus, Sowb. Philippines

nicobaricus, Hwass. Ceylon, Philippines
nigropunctatus, Sowb. Red Sea
nimbosus, Swain. Red Sea
nivosus, Lam. Cape de Verde Is.
nobilis, Linn. Andaman Is. (very rare)
nocturnus, Hwass. Ceylon
nocturnus, Hwass var. deburghiae, Sowb. Moluccas
nodulosus, Sowb. Australia
novae-hollandiae, A. Ad. Australia
nussatella, Linn. Singapore
nux, Brod. Tahiti

obesus, Hwass. Ceylon, Indian Ocean, Philippines
obesus, Hwass var. Indian Ocean
oblivus, Reeve. Philippines
obscurus, Reeve. Isle of Masbate
olivaceus, Kiener. (testudinarius, Mart., var.) West Africa
omaicus, Hwass. Moluccas (extremely rare)
omaria, Hwass. Indian Ocean

panniculus, Lam. Indian Ocean, Moluccas
papilionaceus, Hwass. Senegal, W. Africa
papilionaceus, Hwass var. canariensis, Hwass. Teneriffe
parius, Reeve. Moluccas
parvus, Pease var. atramentosus, Reeve. New Caledonia
paulucciae, Sowb. Madagascar (extremely rare)
pauperculus, Sowb.
pealei, Green. Sarasota Bay, Florida
pennaceus, Lam. Mauritius
pertusus, Hwass. Madagascar
pica, Ad. and Reeve. Moluccas

pica, Ad. and Reeve var. Moluccas
pictus, Reeve. Natal
planorbis, Born. Society Is.
pigmentatus, Ad. and Reeve. Japan
pontificalis, Lam. Australia
pontificalis, Lam. var. Australia
portoricanus, Hwass. Porto Rico, Mexico
praetextus, Reeve. Marquesas Is.
princeps, Linn. Panama
princeps, Linn. var. regius, Chem.
proelatus, Hwass. Moluccas
prometheus, Hwass. West Africa
prometheus, Hwass large var. West Africa
propinquus, Smith. Mauritius
proteus, Hwass. West Indies
pseudomarmoreus, Ducl. New Caledonia
pulchellus, Swain. Mauritius
pulicarius, Hwass. Viti Is., New Guinea
punctatus, Sowb. Bombay
puncticulatus, Hwass. Chili, West Indies
puncticulatus, var. papillosus, Reeve. W. Columbia
puncticulatus, var. pygmaeus, Reeve. West Indies
purpurascens, Brod. Panama
purpurascens, Brod. var. puzonicus, Sowb. Panama
pusillus, Chem.
pusio, Sowb. West Indies
pyriformis, Reeve. Panama
pygmaeus, Reeve var. West Indies

quercinus, Hwass. India, Hawaii
quercinus, Hwass var. ponderosus, Beck

radiatus, Gmel.
ranunculus (achatinus, Chem., var.) Ceylon
raphanus, Hwass. Ceylon
rattus, Hwass. Indo-Pacific
rattus, var. viridus, Sowb. Mauritius
regalitatus, Sowb. Panama
regius, Chem. Panama
regularis, Sowb. Mazatlan
regularis, Sowb. var. incurvus, Kiener. Panama
regularis, Sowb. var. angulatus, A. Ad. Costa Rica
retifer, Menke. Sandwich Is.
rhododendron, Jay. Australia. (Called the most beautiful species of the genus.)
rosaceus, Chem. Algoa Bay
roseus, Lam. West Indies
rubiginosus, Hwass. Mauritius
rubiginosus, Hwass var. Mauritius
rutilus, Lam. Australia
rutilus, Lam. var. smithi, Ang. S. Australia

scabriusculus, Chem. Tahiti
scalaris, Val. Panama
scriptus, Sowb. Mauritius
senator, Linn. Indo-Pacific
seychellensis, Nevill. Seychelle Is.
siamensis, Hwass
sieboldii, Reeve. Awaji, Japan
sigillatus, Reeve. Mauritius
simplex, Sowb. Cape of Good Hope
spectrum, Linn. Mauritius, Moluccas
spectrum, Linn. var. Moluccas

spectrum, Linn. var. daphne, Brod. Philippines
sphacelatus, Sowb. (hebraeus, Linn., var.) West Indies
splendidulus, Sowb. (classiarius, Hwass, var.) Rosemary Id.
sponsalis, Chem. Durban, Natal, Isle of Lord Hood (rare)
splendidulus, Sowb. Berbera, Somali Coast, E. Africa
spurius, Gmel. West Indies
stearnsii, Conr.
stellatus, Reeve. N. W. Australia
stercusmuscarum, Linn. Pelew Is.
stigmaticus, Reeve. Amboina
stramineus, Lamk. Moluccas
striatus, Linn. Ceylon
striatus, Linn. var.
sulcatus, Hwass. Polynesia
sulphuratus, Kiener. Mauritius
sumatrensis, Hwass. Red Sea
sumatrensis, Hwass var. nemocanus, Hwass
suturatus, Reeve. Moluccas

taeniatus, Hwass. Aden, Cape of Good Hope
taheitensis, Hwass. Indo-Pacific
telatus, Reeve. Asiatic Sea
tendineus, Hwass. Mauritius (rare)
tenellus, Ch. New Caledonia (rare)
tenuistriatus, Sowb. Philippines
terebellum, Mart.
terebra, Born. China, Viti Is.
terminus, Hwass. South Africa
tessellatus, Born. Ceylon, East Indies
testudinarius, Mart. West Indies, Africa
textile, Linn. Indian Ocean

textile, Linn. var. tigrinus, Sowb.
textile, Linn. var. verriculum, Reeve
textile, Linn. var. archiepiscopus, Hwass. Ceylon
textile, Linn. var. pyramidalis, Lam. Mauritius
textile, Linn. var. cuetrios, Sowb. Mauritius
thalassiarchus, Gray. Philippines (very rare)
thomasi, Jouss. Aden
timorensis, Hwass. Timor, Mauritius
tinianus, Hwass. South Africa
tinianus, Hwass var. aurora, Lam. South Africa
tornatus, Brod. West Columbia
traversianus, Smith. Aden
trigonus, Reeve. Australia (scarce)
trochulus, Reeve. Cape de Verde Is.
tulipa, Linn. Polynesia

undatus, Kiener. China

vaissetianus, Crosse. (very rare)
varius, Linn. Amboina
vautieri, Kiener. Marquesas Is.
venulatus, Hwass. Philippines
venulatus, Hwass var. nivosus, Lam.
vermiculatus, Lam. Amboina
verrucosus, Hwass. Mozambique
verrucosus, var. echinulatus, Kiener. W. Indies
vexillum, Gmel. Amboina
vicarius, Lam. Mauritius
victoriae, Reeve. Australia
victoriae, Reeve var. Australia
vidua, Reeve. Indian Ocean

virgatus, Reeve. West Colombia
virgo, Linn. Mauritius
viridulus, Lam. Mauritius
vittatus, Lam. Panama
vitulinus, Hwass. Ceylon
voluminalis, Hinds var. auris, Pils. Japan
vulpinus, Hwass. Indian Ocean

ximines, Gray (interruptus, Brod., var.) Lower California

zebra, Hwass. Andaman Is.
zonatus, Hwass. Moluccas

The PLEUROTOMIDAE include a multifarious host, among them a fine specimen of the remarkable *Halia priamus* and several unusually large and handsome examples of *Surcula carpenteriana*. There are sixty species of TEREBRIDAE, all of fine quality, and twenty-seven of CANCELLARIIDAE, one of which, *Cancellaria cooperi*, sold for $75. *C. semidisjuncta* is also worthy of mention.

The STROMBIDAE display almost every known species, even *Strombus thersites* and *Rostellaria powisii*, —aristocrats of ancient lineage. One of their ancestry is shown by *Rostellaria columbaria* from the Calcaire grossier (Eocene Tertiary) of France. This is a wonderfully attractive series of shells, especially the Strombs and the species of *Pterocera*.

In this collection no family has been discriminated against, because of insignificance or of costliness, nor

could the specialist in each or any group have made better selections. No wonder then that the favorite of favorites is superb. CYPRAEIDAE! Many men have devoted their lives to Cypraea alone without excelling these groups. Indeed several life achievements have actually gathered here by that law of accretion which draws like things unto themselves, for the choicest specimens of several well known collections of Cypraea find here their resting place. Lest these words seem extravagant, let the list of species be their justification. It is practically a catalogue of every described variety of Cypraea, and represents a money outlay that would startle the uninitiated.

CYPRAEA

adamsoni, Gray. Isle of Bourbon
adelinae, Roberts
adusta, Chem. (onyx, Linn., var.) Ceylon
albonitens, Melv. (pantherina, Sol., var.)
albuginosa, Mawe. Gulf of California
algoensis, Gray. Algoa Bay
ambigua, Gmel. (tigris, Linn., juv.)
amphithales, Melvill. South Africa (very rare)
angustata, Gmel. South Australia
annae, Roberts (semiplota, Mighels, var.) Oahu
annulata, Gray. Mauritius
annulus, Linn. Indian Ocean
arabica, Linn. Australia, Indian Ocean, Samoa (Eight stages and two pigmy specimens.)
arabica, Linn. brilliant yellow var.

arabica, Linn. green var.
arabica, Linn. brilliant purple var.
arabica, Linn. reddish yellow var.
arabica, Linn. entirely gray var.
arabica, Linn. typical in color, very curious markings
arabica, Linn. curious oblong marks
arabica, Linn. curious color var. Diego Garcia
arabica, Linn. var. atra, Dautz. New Caledonia
arabicula, Lam. Acapulco
arabicula, Lam. dwarf var.
arenosa, Gray. Central Pacific
argella, Melv. (helvola, Linn., var.)
argus, Linn. New Hebrides, Indian Ocean
argus, Linn. very curious var. New Caledonia
argus, Linn. singular color var. Diego Garcia
artuffeli, Jouss. Australia
asellus, Linn. Samoa, Australia
atava, Rochebrune (moneta, Linn., var.)
atomaria, Gmel. (punctata, Linn., var.)
aurantia, Martyn. Loyalty Is., Fiji and Solomon Is. (Eleven fine specimens, one of extraordinary size.)

badionitens, Melv. (pantherina, Sol., var.)
barthelemyi, Bernardi. New Caledonia
becki, Gaskoin. Red Sea, Polynesia, Society Is.
bicallosa, Gray. I. St. Vincent, W. Indies
bicolor, Gask. (piperata, Sol., var.)
bicornis, Sowb. (mus. Linn., var.) Mediterranean
boivini, Kiener. China
bregeriana, Crosse. New Caledonia
brevidentata, Sowb. Port Jackson

broderipi, Gray. Madagascar ("Of very great rarity" S. R. Roberts.)

caledonica, Crosse. New Caledonia
camelopardalis, Perry. Red Sea
camelopardalis, Perry, albino. Red Sea (very large)
candida, Pease (clandestina, Linn., var.) Ceylon, Japan, Australia
capensis, Gray. Cape of Good Hope
capensis elizabethensis, Rous. Cape Colony (type specimen)
caput-anguis, Philippi
caput-serpentis, Linn. Indian Ocean
caput-serpentis, Linn. curious var.
caput-draconis, Melv.
carneola, Linn. Indian and Pacific Oceans
carneola, Linn. var. Pacific Ocean
carneola, Linn. green var. Mauritius
carneola, Linn. exceptionally large. Paumotu Is.
castanea, Higgins. Cape of Good Hope
caurica, Linn. Pacific Ocean
caurica, Linn. var. Pacific Ocean
caurica, Linn. black var., very large. North Gambia
caurica, Linn. distorted
cernica, Sowb. Mauritius
cervinetta, Kiener. Panama
cervus, Linn. Panama
cervus, Linn. var.
cervus, Linn. white var.
childreni, Gray. Borneo, New Caledonia
chinensis, Gmel. (lynx, Linn., var.)
cholmondeleyi, Sowb. (macula, A. Ad., var.)

chrysalis, Kiener. Indian Ocean
chrysophera, Melv. (errones, Linn., var.) Andaman Is.
cicercula, Linn. Mauritius
cicercula, Linn. var. lienardi, Jouss. Mauritius
cicercula, Linn. var. tricornis, Jouss. Mauritius
cinerea, Gmel. West Indies
cinerea, Gmel. pale var.
cinerea, Gmel. albino, Matanzas
cinerea, Gmel. Key West, Fla. (collected by Mr. Henry Hemphill)
citrina, Gray. Ceylon, N. W. Australia (very rare)
citrina, Gray. narrow form. South Africa
citrina, Gray. very beautiful. South Madagascar
clandestina, Linn. Ceylon, Japan, Australia
clara, Gask.
coffea, Sowb.
coloba, Melv.
compta, Pease (cumingi, Gray, var.) Society Is.
comptoni, Gray
concava, N. Owen color var. (a distorted form of caurica, Linn.)
controversa, Gray. Gulf of California
coxeni, Cox. Solomon Is. (very rare)
cribellum, Gask. Mauritius
cribraria, Linn. Ceylon, New Caledonia
cribraria, Linn. dwarf var. Mozambique Channel
cribraria, Linn. var. exmouthensis, Melv. New Caledonia
cribraria, Linn. var. rostrata, Dautz. New Caledonia
crossei, Marie (stolida, Linn., var.) New Caledonia (very rare)
crossei, Marie, magnificent, unique in form and color (New Caledonia)

cruenta, Gmel. New Guinea, Indian Ocean
cumingi, Gray. Society Islands (very rare)
cylindrica, Born. Ceylon, Australia, New Caledonia
cylindrica, Born var. (very large and curious)

decipiens, E. A. Smith. North Australia
declivis, Sowb. Portland, Victoria
dianges, Melv. (stolida, Linn., var.)
diluculum, Reeve (undata, Lam., var.)

eburnea, Barnes. Philippines
edentula, Sowb. South Africa, Cape of Good Hope, and Port Elizabeth
erosa, Linn. Indian and Pacific Oceans
erosa, Linn. var. Pacific Ocean
erosa, Linn. dwarfs
erosa, Linn. beautiful burnt orange var. Indian Ocean
errones, Linn. China, Australia, Indian Ocean
errones, Linn. curious color var.
errones, Linn. var. compressa, Dautz. New Caledonia
eglantina, Duclos. Samoa
eglantina, Duclos odd var. Amboina
erythraeensis, Beck. Red Sea
erythraeensis, Beck var. very broad form. Berbera
esontropia, Duclos. Sandwich Is.
ethnographica, Rochebr. (moneta, Linn., var.)
exanthema, Linn. West Indies, Panama
exusta, Sowb. Red Sea

fabula, Kiener (felina, Gmel., var.) Pacific Ocean
felina, Gmel. Indian Ocean
fimbriata, Gmel. Australia, Indian Ocean

fimbriata, Gmel. green var.
flaveola, Lam. (spurca, Linn., var.)
flaveola, Linn. Australia
fusco-dentata, Gray. Cape of Good Hope (rare)
fusco-maculata, Pease. I. Apaian

gangraenosa, Sol. (typical) China, Ceylon
gangraenosa, Sol. var. Dill. Aden.
gaskoini, Reeve. (rare)
gelassima, Melv. (stolida, Linn., var.)
gemmula, Weinkauff. Red Sea (rare)
globulus, Linn. Mauritius, Borneo
goodali, Gray. Lord Howe's Is., Paumotus
granulata, Pease. Sandwich Is.
greegori, Ford (coloba, Melv.) Ceylon

hamyi, Rochebr. (annulus, Linn., var.) Zanzibar
harmandiana, Rochebr. Zanzibar
helvola, Linn. Indian Ocean, Mauritius, Sandwich Is.
helvola, Linn. var. mascarana, Melv.
helvola, Linn. var. hawaiiensis, Melv. Japan, Sandwich Is.
hirundo, Linn. New Caledonia, Indian Ocean, Australia
histrio, Meuschen. Indian Ocean
histrio, Meuschen. var. Indian Ocean
histrio, Meuschen. var. with richly colored base
histrio, Meuschen. var. with back like C. broderipi

icterina, Lam. (moneta, Linn., var.) Tahiti, Australia
intermedia, Gray. Pacific Ocean
interrupta, Gray. Ceylon
interstincta, Wood (staphylaea, Linn., var.) Indian Ocean

irina, Kiener
irrorata, Sol. Paumotus
isabella, Linn. Pacific Ocean
isabella, Linn. stout var.
isabella, Linn. var. limpida, Melv. Sandwich Is. (rare)
isabella, Linn. var. Andaman Is.
isabella, Linn. var. mexicana, Stearns. Clipperton Is. (very rare)

labiolineata, Sowb.
labrolineata, Gask. Japan, Australia
lamarcki, Gray. Indian and Pacific Oceans
lentiginosa, Gray. Ceylon
leucostoma, Gask. Arabia (rare)
lienardi, Jouss. Mauritius (see cicercula, Linn.)
limacina, Lam. Pacific Ocean
listeri, Gray. Philippines
loebbeckiana, Weinkauff. Pacific Ocean, Indian Ocean
lurida, Linn. Mediterranean
lurida, Linn. oblong form. Cape Verde Is.
lutea, Gronovius. New Caledonia, Australia
lynx, Linn. Red Sea, Australia, New Caledonia, Indian Ocean
lynx, Linn. var. approaching var. caledonica
lynx, Linn. elongate form, very large. Philippines
lynx, Linn. a striking and rare variety with heavy blotches on back
lynx, Linn. dwarfs
lynx, Linn. of extraordinary size

macula, A. Ad. Japan, Australia

madagascariensis, Gmel. Madagascar
mappa, Linn. Java, Indian Ocean
mappa, Linn. var. panerythra, Sowb. "The most beautiful specimen we ever saw of this var." G. B. Sowerby
mappa, Linn. var. subsignata, Sowb. Indian Ocean
mappa, Linn. var. subsignata, Sowb. exceptionally beautiful color var. (ex. col. Sir David Barclay) Diego Garcia
margarita, Sol. Annae Is.
mauritiana, Linn. Samoa, Ceylon
mauritiana, Linn. var. Indian Ocean
mauritiana, Linn. grayish white. Indian Ocean
mauritiana, Linn. very rare, curious and beautiful var. nov. Borneo
mayi, Beddome (angustata, Gmel., var.)
melanostoma, Leather (camelopardalis, Perry) Red Sea
melanostoma, Leather, with double end. Red Sea (G. B. Sowerby)
mercatorium, Rochebrune. Japan
microdon, Gray. Loyalty Is., Mauritius
miliaris, Gmel. Japan, New South Wales
miliaris, Gmel. var. diversa, Kenyon. (new var.)
moneta, Linn. Maldive Is., Japan, Australia
moneta, Linn. with annulus markings
moniliaris, Lam. Australia
moniliaris, Lam. f. major
moniontha, Melv. (stolida, Linn., var.) Mauritius
mus, Linn. Atlantic Ocean
mus, Linn. var. (not bicornis) Atlantic Ocean, Mediterranean
montrouzieri, Dautz. (var. of mappa) "Magnificent and almost unique," says G. B. Sowerby

nebrites, Melv. Bombay
nebulosa, Kiener
neglecta, Sowb. Australia, Mauritius
neglecta, var. marteli, Dautz. New Caledonia
niger, Roberts, New Caledonia
nigropunctata, Gray. Galapagos Is.
nivosa, Brod. Indian Ocean (very rare), from Lord Ashbrook's collection
noumeensis, Marie (annulus, Linn., var.) New Caledonia (magnificent, unique in form)
nucleus, Linn. Pacific Ocean
nymphae, Duclos (onyx, Linn., var.)

oblongata, Melv.
obscura, Rossiter. New Caledonia
obvelata, Linn. Samoa, Australia, New Caledonia
ocellata, Linn. Ceylon
ocellata, Linn. var. with rounded form
olivacea, Lam.
onyx, Linn. Ceylon, Japan
oranica, Deb. (physis, Brocchi, var.) Oran, Algeria

pallida, Gray. Japan
pallida, Gray var.
pantherina, Sol. Red Sea
pantherina, Sol. var. theriaca, Melv. (intensely black)
pantherina, Sol. grayish white var.
pantherina, Sol. var. with spots merging into longitudinal streaks
peasei, Sowb. Sandwich Is.
perrieri, Rochebr. (form connecting annulus and obvelata)

perva, Melv. (annulus, Linn., var.) Australia
petitiana, Crosse and Fischer. Senegal
phragedana, Melv. (errosa, Linn., var.)
physis, Brocchi. Sicily
physis, Brocchi var. grayi, Keiner. Senegal
picta, Gray. Gambia, Cape Verde Is.
piperata, Sol. Australia
piperata, Sol. var. with longitidudinal markings (very rare)
pleuronectes, Rochebr.
polita, Roberts. Sandwich Is.
poraria, Linn. Fiji Is., New Caledonia, Australia
poraria, Linn. var. vibex, Kenyon (new var.)
poraria, Linn. var. insignis, Dautz. New Caledonia
propinqua, Sowb. (carneola, Linn., var.)
pulchella, Swainson. China
pulchella, Swainson rare color var.
pulchella, var. pericalles, Melv. Meekian Coast
pulchra, Gray. Red Sea
pulicaria, Reeve. West Australia
punctata, Linn. Isle of Bourbon
punctulata, Gray. Panama
pustulata, Lam. Panama
pygmaea, Melv. (mappa, Linn., dwarf) (very rare)
pyriformis, Gray. Borneo, Ceylon, Australia
pyriformis, Sowb. (turdus, Lam., var.) Persian Gulf
pyrum, Gmel. Mediterrananean, Atlantic Ocean
pyrum, Gmel. var. Persian Gulf

quadrimaculata, Gray. Borneo, Indian Ocean

rashleighana, Melv. Mauritius
rashleighana, Melv. oblong var.

rattus, Lam. West Africa
reevei, Gray. Australia
reticulata, Martyn. Indian Ocean
reticulata, Martyn var. Pacific Ocean
rhinoceros, Sowb. New Caledonia
rhinoceros, Sowb. var. New Caledonia
rossiteri, Brazier (comptoni, Gray, var.) teste Beddome

sanguinolenta, Gmel. Gambia
sanguinolenta, Gmel. perfect, but very peculiar in form
sarcodes, Melv. (vitellus, Linn. var.)
scotti, Brod. West Australia (seven specimens, all different)
scurra, Chem. Annae Is.
scurra, Chem. very slender var. Australia
scurra, Chem. curious color var. Diego Garcia
semiplota, Mighels. Hawaiian Is.
similis, Gray. South Africa (very rare)
sophiae, Brazier (typical) Torres Straits
sowerbyi, Kiener. Gulf of California
spadicea, Swainson. Santa Barbara, San Diego, California
spadicea, Swainson. A beautiful suite of over one hundred specimens from the youngest to the fossil shell.
spadix, Mighels. Oahu
spurca, Linn. Mediterranean, Atlantic Ocean
spurca, Linn. albino var. Atlantic Ocean
spurca, Linn. extremely large and fine. Persian Gulf
staphylaea, Linn. Indian and Pacific oceans
staphylaea, Linn. var. consobrina, Garrett. Loo Choo Is.
staphylaea, Linn. var. depravata, Dautz. New Caledonia
stercoraria, Linn. West Africa
stercus-muscarum, Linn. Is. Bourbon, Borneo

stolida, Linn. Ceylon, Borneo, New Caledonia
stolida, Linn. peculiarly translucent var. not brevidentata nor dianges, but near the latter, teste S. Raymond Roberts.
stolida, Linn. "Unique for size and beauty." G. B. S.
stolida, Linn. var. (very pale fawn, destitute of dorsal blotches)
staminea, Melv. (erosa, Linn., var.)
subcarnea, Ancey. Tasmania
subcylindrica, Sowb. Australia, New Caledonia
subviridis, Reeve. West Australia, New Caledonia
subviridis, Reeve var. Marquesas Is.
subviridis, Reeve var. remarkable specimen. Port Stevens, Australia
subviridis, Reeve var. anceyi, Vayssier
succincta, Linn.
sulcidentata, Gray. Australia, South Seas
sulcidentata, Gray, a magnificent specimen, "the largest known." G. B. Sowerby
syringa, Melv. (pantherina, Sol., var.)

tabescens, Sol. Mauritius
tabescens, Sol. brown-banded var.
talpa, Linn. Pacific and Indian Oceans
talpa, Linn. curious var.
teres, Gmel. Ceylon
testudinaria, Linn. Ceylon, New Caledonia
testudinaria, Linn. var. Ceylon
tessellata, Swain. New Zealand, Hawaii
tessellata, Swain. white var.
thersites, Gaskoin. South Australia
thomasi, Crosse

tigris, Linn. Indian and Pacific Oceans
tigris, Linn. var. flavonitens, Melv. Fiji Is., New Caledonia
tigris, Linn. var. lyncichroa, Melv. New Caledonia (very rare)
tigris, Linn. var. zymecrasta, Melv. Mauritius
tigris, Linn. var. hinnulea, Melv. Fiji Is.
tigris, Linn. var. russonitens, Melv. Fiji Is.
tigris, Linn. var. chionia, Melv. Fiji Is.
tigris, Linn. var. ionthodes, Melv. Fiji Is.
translucida, Sowb. (cribraria, Linn., var.)
turdus, Lam. very large and broad
turdus, Lam. slender vars. Persian Gulf
turdus, Lam. dwarf vars.

umbilicata, Sowb. New South Wales
undata, Lam. Mauritius
ursellus, Gmel. Indian and Pacific Oceans

ventriculus, Lam. Pacific Ocean
vesicularis, Gask. Cape of Good Hope
viridis, Kenyon 1902. (mappa, Linn., var.) New Caledonia
vitellus, Linn. Indian Ocean, Australia
vitellus, Linn. 3 vars. New Caledonia
vitellus, Linn. pure white. Two specimens from Fiji Is.

walkeri, Gray. (six fine specimens)
walkeri, Gray var. rossiteri, Dautz.
williamsi, Melv. (lynx, Linn., var.) (var. nov.)

xanthocrysa, Melv. (sulcidentata, Gray, var.)
xanthodon, Gray. Australia

ziczac, Linn. (typical)
ziczac, Linn. var. Mozambique

ziczac, Linn. var. Ceylon
zonata, Chem. Mouth of Gambia River

SUBGENUS TRIVIA

australis, Lam. New South Wales

brevissima, Sowb.

californica, Gray. California
candidula, Gask. Canary Is., Azores
cimex, H. Owen
coccinella, Lam. (europaea, Mont., var.) Morocco
costata, Gmel. West Indies
costispunctata, Gask. Florida

depauperata, Sowb.

europaea, Mont. Mediterranean
exigua, Gray. Paumotus

formosa, Gask. Cape of Good Hope
fusca, Gray. Lower California

gemmula, Gould. Sandwich Is.
globosa, Gask.
grando, Gask.

insecta, Mighels

jousseaumei, (europaea, Mont., var.) Barcelona, Spain

labiosa, Gask.

maugeri, Gray. Galapagos Is.
mollerati, Locard.

multilirata, Sowb.

napolina, Duclos. Australia
nivea, Gray. West Indies

oniscus, Lam. Cape of Good Hope
oryza, Lam. South Pacific Is.
ovulata, Lam. Cape of Good Hope

pacifica, Gray. Galapagos Is.
pediculus, Linn. West Indies
pellucidula, Gask. Pacific Ocean
producta, Gask. Borneo, N. W. Australia
pulex, Sol. Mediterranean Sea
pulla, Gask. Gulf of California
pullata, H. Owen

quadripunctata, Gray

radians, Lam. Gulfs of Mexico and California
rota, Weink. Lower California
rotunda, Kiener. West Indies
rubescens, Gray. Galapagos Is.
rubinicolor, Gask. Borneo

sanguinea, Gray. California, Ecuador, Mazatlan
scabriuscula, Gray. Ceylon
solandri, Gray
subrostrata, Gray. West Indies
suffusa, Gray. West Indies
sulcata, Gask. Manila

tremeza, Duclos
turneri, Jouss.

vitrea, Gask. Philippines

Many of the extremely rare specimens of Cypraeas, and other fine species represented here, came from the old collections in foreign lands, of Sir David Barclay, General Tripe, Dr. James C. Cox, Lord Ashbrook, Admiral Keppel, Mr. S. I. Da Costa, and many others, besides from those of Prof. Henry A. Ward, Mr. John H. Campbell, Mr. J. H. Delaney, Mr. Sloman Rous, Mr. Henry Hemphill, and others in this country, all of whom were collectors of large experience and fine taste.

Some interesting fossil forms of Cypraea, not included in the above enumeration, are chiefly from the Campbell collection.

It is worth while to rehearse some of the great rarities among the Cypraeas here. Cypraea broderipi, the only one in America, Cypraea sulcidentata, the largest specimen known of this very rare species, C. capensis elizabethensis, a type specimen, C. castanea, C. nivosa, C. citrina, C. chrysalis, C. bicallosa, C. montrouzieri, C. walkeri, C. bregeriana, C. oranica, C. coxeni, C. gelassima, C. boivini, C. gemmula, C. nebulosa, C. similis, C. pyriformis, C. rashleighana, C. goodalli, C. noumeensis, C. crossei, C. cumingi. Then come the remarkable, unmatched color-varieties of C. tessellata, camelopardalis, vitellus and mappa, of C. argus and mauritiana, the curious mutations in form and size of many species, the wonderful color suites

of C. spadicea, C. tigris, C. mappa, etc. Here is an opportunity for the student of individual variation and environmental modification! There are eleven C. aurantia, ten C. decipiens, seven C. scotti, fourteen C. testudinaria, four C. leucostoma, six C. walkeri, four C. umbilicata, ten C. thersites, and so on through the really rare species, no one of them a duplicate.

A mere list fails utterly to show the wealth of representation without repetition, whereby this collection offers some three thousand specimens to illustrate the ramifications of not over three hundred and fifty recognized species and varieties. No list, no description, can convey the mental impression made by this assemblage of three thousand spotlessly perfect specimens.

The PEDICULARIIDAE, OVULIDAE, DOLIIDAE, and CASSIDIDAE are fully represented; also the NATICIDAE, with eighty or ninety species, illustrating all of its curious genera. The same may be said of the multiform CALYPTRAEIDAE. Fossil forms of all these families are in the collection.

Still more strange and bizarre are the members of the next two families. The XENOPHORIDAE constitute a small group of great interest and rarity, and there are many fine specimens, those of *Xenophora pallidula* being especially remarkable in the array of objects with which it has decorated its whorls,—itself a conchologist of no mean repute. The aberrant VERMETIDAE are similarly distinguished by a *Siliquaria* (*Tenagodus*)

muricata from the Moluccas, of which Mr. Sowerby avers that the British Museum has none as fine and perfect as this.

There are recent acquisitions of fossil TURRITELLIDAE and a goodly number of CAECIDAE, EULIMIDAE, PYRAMIDELLIDAE, TURBONILLIDAE, SOLARIIDAE, and IANTHINIDAE. They are not passed by because they merit less praise than others, for they also have received patient attention as shown in forty-six species here of the tiny Eulimas, alone! It is the SCALIDAE that caught the popular fancy and once commanded such fabulous prices, while even yet some bring their weight in gold. These expensive little specimens are here, *Scala pallasi*, *S. lineata*, several of the far-famed *Scala pretiosa*, and others, beside their lesser kin.

There is a long procession of CERITHIIDAE, a revelation of the number of species and the variety of form and coloring to be found in this family. They accommodate themselves to strange modes of living, but it is not easy to believe that this odd and striking shell, labelled "*Bythoceras iridescens*, Moore, dredged in 700 feet in Lake Tanganyika," is (as its anatomy proves) a scion of the *Cerithium* stock. It is exceedingly rare, and another rare form here is *Potamides* (*Terebralia*) *gourmyi*.

Many families, important in themselves, but monotonous in lists, are passed by, although they include such groups as the MELANIIDAE, LITTORINIDAE, AMPULLARI-

IDAE and NERITIDAE and their allies. Nor does it seem best to enumerate the operculate land shells (TRUNCATELLIDAE, CYCLOSTOMIDAE, HELICINIDAE, PROSERPINIDAE, etc.) with fifty-eight genera, and over six hundred species, carefully studied, fascinating, and worthy of full description. The fresh-water shells not listed are also numerous, choice and beautiful.

The TURBINIDAE and TROCHIDAE are of especial interest to collectors and their representatives are worthy of extended mention, but we must be content to notice the nine or more species of *Delphinula* including *D. aculeata*, *imperialis* (a strikingly handsome shell, a very rare species), *tyria*, *incisa*, *laciniata*, *atrata*, and *distorta*, and the deep sea forms *Bathybembix argenteonitens* and *Turcicula bairdi*, and pass to a family of far more than ordinary importance. *Pleurotomaria beyrichii*,—last of a noble race, coveted representative of an almost extinct but princely family, the PLEUROTOMARIIDAE. Even the pearly *Nautilus* has no higher pride of ancestry, no greater magnificence of apparel. This priceless treasure is from the depths of the Japanese ocean. Only five recent species of this family and only seven of the *beyrichii* are known. The group culminated in numbers in the Coal Age, and a fossil specimen from that period is in the collection.

An exceptionally fine series, even for this cabinet, is that of the HALIOTIDAE, with over seventy species,

and two hundred and eighty-five fine specimens. With these must be ranked in quality the "limpets," PATELLIDAE, ACMAEIDAE, FISSURELLIDAE, etc. Specialists in these groups may envy these specimens. The representation of the "tectibranch" molluscs (BULLIDAE, etc.) is also excellent, with many rare and noteworthy forms.

PULMONATA

Collectors who have surrendered to the charm of the land shells will find this collection deficient neither in quality nor quantity of the *pulmonates.* Prof. Henry A. Ward said of it, shortly before his death, that he had never seen such a collection of land shells as Mrs. Williams', and that he should never tire of looking at it. In the catalogue appear about one hundred and seventy-five genera of *Pulmonata* represented, but if the latest writings of Pilsbry are followed there must be at least two hundred generic groups. Of the HELICIDAE alone there are hundreds upon hundreds of species present and long lists of rare kinds. The series of *Helicostyla* and its subgenera is especially attractive and choice, including the very rare *H. harfordi,* Sowerby, from Negros.

The land shells thus constitute a very important part of the collection. Of special interest are *Helix salleana,* from Guatemala, said to be the rarest American shell; "*Bulimus*" *dombeyanus,* Ferussac, of which are known

only four specimens obtained many years ago by Sir Rawson W. Rawson, while governor among the West India Islands, the locality unknown, but believed to be Mexico; *Bulimus* (*Panda*) *larreyi* from Australia; *B.* (*Placostylus*) *senilis* (semi-fossil), from New Caledonia; *Otostomus navicula*, from South America; *Pleurodonte gealii*, Smith, from Ecuador, a scarce and curious species resembling the *Papuinae* of New Guinea in its pinched lip and peculiar iridescence; *Thersites broadbenti*, *bellendenkerensis*, *convicta*, *deberghi*, *dupuyana*, *brookensis*, *halbornensis*, *macleayi*, etc., of Australia, and especially *Th. septentrionalis*, one of the first seen alive of this very rare shell which was described from dead and bored specimens worn by the native bushmen; *Papuina brazierae*, *linterae*, *macgillivrayi* and *maclayana* from New Guinea and Queensland. A set of *Ariophanta laevipes* from Bombay, showing the variation in color from black through the typical banded forms to pure white; *Planispira scheepmakeri*, Pleiffer, from Batchian Island; *Helicostyla heimburgi;* six new Japanese species of *Chloritis* and seven of the new genus *Mandarina;* *Rhodea gigantea*, *Stenopus guildingi;* *Oxytes oxytes*, Benson, from India; *Clavator grandidieri*, Crosse and Fisher (or *placostyloides*, Kobelt, or *vayssieri*, Ancey) from South Madagascar, hitherto (1901) known only as a fossil; *Pieria schrammi;* *Helicigona meliniana*, Müller, from the mountains of Corsica; *Acavus fastosa* and *skinneri*, from the high mountains (7000 feet) in Ceylon; *Acha-*

tina linterae, from Africa; *Carelia cumingiana* from Hawaii, etc., etc.

Particular mention should be made of the series of West Coast shells from Mr. Henry Hemphill, illustrating 229 variations in the insular pulmonate fauna of that region, and a similar series of 157 mutations of *Patula alternata*. A set of thirty-three color varieties of the brilliant little "banana snail," *Polymita picta*, from Cuba, is very attractive also. There is an almost unexampled suite of the interesting genus *Amphidromus*, 65 species in all, and equally fine showings of *Achatinella*, *Clausilia*, and *Eulota*.

Although this is primarily a shell collection, there is a good series of the shell-less "slugs" of LIMACIDAE, ONCHIDIIDAE, etc.

3. *AMPHINEURA*. Scarce of individuals and almost unknown to the rank and file, difficult of study, the Chitons, or "Coat-of-Mail shells," have always found a few admirers among advanced conchologists. The suite of these forms selected to illustrate the various modifications of these multivalve creatures is well chosen, and covers the four great families: ISCHNOCHITONIDAE, MOPALIIDAE, ACANTHOCHITIDAE, and CHITONIDAE. Among specimens of special note are *Onithochiton hirasei*, *Acanthochites subachates*, *Cryptoplax japonicus* and *C. rhodoplax*, all newly described by Pilsbry, from Japan, together with two new and rare forms from St. Vincent's Gulf, Australia, viz.: *Chiton*

callizona, Pils. and *C. exoptandus*, Bednall. There are also specimens of *Katharina*, *Tonicia*, *Mopalia*, *Ischnochiton*, *Cryptochiton*, etc.

4. *SCAPHOPODA.* This circumscribed little group is represented by ten species of *Dentalium*, and the exceedingly rare *Siphonodentalium quinquangulare*, Forbes, from a depth of 1793 feet in the Mediterranean Sea, illustrating the two known families of "tooth shells" (DENTALIIDAE AND SIPHONODENTALIIDAE).

5. *PELECYPODA.* A good collection of bivalves is rare, and the comparative absence of descriptive works on pelecypods has discouraged many whom the beauty or oddity of these shells would attract. This very absence of literature makes a large, authentically named collection of bivalves of the greater value to the student.

It is as much a treat to examine here the specimens of *Veneridae* as of *Cypraeidae*, *Spondylidae* as *Volutidae*, *Pectinidae* as *Muricidae*, and the bivalves become very much worth while, as indeed they should be. It is through no lack of merit that these forms receive less attention than the univalves. They have their proper place in this collection with full rank and dignity.

First come the remarkably modified burrowing types of the families PHOLADIDAE and GASTROCHAENIDAE, specimens of *Penitella concamerata*, ensconced in solid rock, prisoners in domiciles of their own construc-

tion, with allied forms of the genera *Pholas*, *Monothyra*, *Talona*, *Zirphaea*, *Jouannetia*, *Pholadidea*, *Netastomella*, and *Martesia*, and beside them the marvelous tube-building species of *Aspergillum* and *Fistulana*. Many of the Pholads possess supplementary "valves" to the shell, notable among these being a fine *Pholadidea papyracea* preserving the siphonoplax.

The "razor-shells" (SOLENIDAE) are displayed in a variety of genera, including *Solen*, *Ensis*, *Pharus*, *Pharella*, *Siliqua*, *Macha*, and *Tagelus*. *Solen roseomaculatus*, Pilsbry, is a new species from Japan.

The SAXICAVIDAE, CORBULIDAE, MYACIDAE, ANATINIDAE and MACTRIDAE are present and also the very rare *Pholadomya vitrea* from the Caspian Sea, sole survivor of its race.

In the smaller-sized though better-favored TELLINIDAE are many forms of great delicacy and beauty. Some are so fragile and so pink that they serve the clever Japanese for rose petals on screens and jewel-boxes, while others are familiar everywhere in their auroral rays, as "sunrise shells." The collection contains forty-four species of *Tellina*, fourteen of *Donax*, besides various specimens of *Asaphis*, *Gari*, *Sanguinolaria*, *Hiatula*, *Elizia*, *Angulus*, *Strigilla*, *Macoma*, *Iphigenia*, etc. *Tellina subpallida*, Smith, is a new species from Aden. The SEMELIDAE are represented by *Scrobicularia* and *Semele*.

The "Venus shells" (VENERIDAE) are as lovely

among the bivalves as the *Cypraeidae* among the univalves. Beauty of color and of sculpture distinguish most of the forms. This series of selected specimens is impressive. There are *Chione lamellata* with wonderful frills (a remarkably fine specimen, by the way), and *Dione lupanaria* with long terete spines, the polished Callistas and the criss-crossed Circes, with the brilliant purples and scarlets and oranges of some species and the soft pink-browns and wood-tints of others,—another opportunity for the student of adaptive variation! The genera represented (formerly all included under "Venus," "Cytherea," "Tapes," and "Artemis") are chiefly *Mercenaria*, *Anaitis*, *Cryptogramma* and *Chione*, *Tivela*, *Meretrix*, *Callista*, *Caryatis*, *Dione*, *Amiantis*, *Lioconcha*, *Crista* and *Circe*, *Sunetta*, *Dosinia* and *Cyclina*, *Tapes* and *Venerupis*. A very rare form, from the "Challenger" expeditions, is *Venus torresiana*, Smith, from Torres Straits. *Tapes phenax*, Pilsbry, is a new species from the Loo Choo Islands.

Passing some small families, several of them represented by all the known species, and a few of larger size, including the fresh-water CYRENIDAE, SPHAERIIDAE, and PISIDIIDAE and the marine CARDIIDAE, an interesting family represented by many fine specimens, we come to the rare ISOCARDIIDAE (six species shown) and the divergent CHAMIDAE. Eighteen species of *Chama* are here, including unusually fine examples of the highly prized *Chama lamellosa*, and the chrysanthemum-like *Chama macrophylla*, *Ch. lazarus*, and

Ch. damaecornis. There are also specimens of fossil *Chamae.*

Again we pass a number of families few in species, including the TRIDACNIDAE (nearly all the species of *Tridacna* and *Hippopus* are here, huge, overgrown, but far from ungraceful), LUCINIDAE (quite a number of species, of which *Corbis sowerbyi*, Reeve, from China, deserves special mention on account of great rarity) and others typified by the genera *Kellia*, *Scintilla*, *Solemya*, *Crassatella*, *Gouldia*, and *Astarte*, besides the CARDITIDAE and CYPRICARDIIDAE.

The beautiful pearl shells from our own lakes and streams, to which belongs the suggestive name UNIONIDAE, have peculiar interest. No other family is as distinctively and characteristically American. Let others seek these shells in a war of extermination, to mutilate and change them into objects of personal adornment, but let us study them and enjoy the rich iridescence of their nacre. For there are here, not merely a fine cabinet series of hundreds of natural shells, but a half a hundred or more of hand-polished specimens, the very best obtainable. Some of the finest of these fresh-water clams came from the boiling rapids of the Baraboo River in Wisconsin, obtained by divers at the risk of their lives. The collection includes Lewis's type of *Unio brevis* and a cotype of *U. bursapastoris*, B. H. Wright. *Burtonia tanganyikensis*, Smith, illustrates a strange form of this group from Central Africa.

The allied MUTELIDAE and AETHERIIDAE are well represented, among the latter *Mülleria dalyi*, Smith, from India, noteworthy as being a newly found congener of a remarkable form heretofore known only from the rivers of South America, thus raising most interesting and perplexing questions as to the mode of distribution of this otherwise highly puzzling genus. (See Proc. Mal. Soc. of London, Vol. III. n. s., pp. 14-16.)

Again is the present linked with the past in the four living species of *Trigonia*, a family (TRIGONIIDAE) that reached a high development in the Mesozoic seas; and once again in the NUCULIDAE (*Nucula*, *Leda* and *Yoldia*) whose ancestors of identical lineament are entombed in the Devonian rocks of our own land.

Here too are the "Noah's Ark" shells (ARCIDAE) that truly survived the deluge, many fine examples of the genera *Arca*, *Barbatia*, *Anomalocardia*, *Senilia*, *Scapharca*, *Parallelipipedum*, *Argina*, *Cucullaea*, *Pectunculus*, etc.

The shell-lover knows that many interesting objects, and many beautiful forms, are to be found in the MYTILIDAE, the PINNIDAE, the AVICULIDAE and PERNIDAE, even though to others the names are meaningless. *Modiola polita*, Verrill and Smith, came from off Catalina Island in 30 fathoms. Two species of OSTRAEIDAE, *Ostrea circumpicta*, Pilsbry, a new species from Japan, and a very large and beautiful *Ostrea folium*, Linnaeus,

from Central America, clearly demonstrate that oysters are not to be despised, either for stature or looks. The fossil genera *Exogyra* and *Gryphaea* are represented, as well as fossil species of *Ostrea* proper.

Last but not least are the PECTINIDAE and SPONDYLIDAE. There are over a hundred species of the *Pecten* clan, representing the forms usually called *Pecten*, *Vola*, *Amussium* and *Hinnites*, but which must now be distributed under a number of new generic designations. For richness of coloring and elaborate simplicity of dress, no group of mollusc shells can surpass the members of this family, unless it be the one that immediately follows, before turning to which let us note eight interesting accessions: *Pecten dringi*, Reeve, from off Western Australia; an especially beautiful *P. plica*, Linnaeus, from the Indian Ocean; a *P. reevei*, Adams and Reeve; *P. swifti*, Bernard, from Japan; *P. diegensis*, Dall, dredged in deep water in San Pedro Bay; *P. leopardus*, Reeve, N. W. Australia; the new *P. keppelianus*, Sowerby, from Cape Verde Islands, and *P. luculentus*, Reeve, from Tahiti,—all rare. Surely I have never seen and never expect to see a more exquisite display of these particularly charming forms.

There are also many fossil Pectens sent by Mr. Hemphill from the California Tertiary beds, of which he says that it is seldom possible to get such perfect specimens.

Like the glory of the setting sun at the close of day, is the beauty of the cabinet which marks the completion of our many days' visit to Mrs. Williams' collection. Well may we linger before this very remarkable assembly in the centre of which stands the shell which perhaps more than all others has figured in the traditions and held the veneration of conchologists,—*Spondylus regius*, Linnaeus, the shell for which three hundred pounds sterling was once deemed a low figure in London. It is a magnificent specimen gleaming with rich metallic pink reflections from its scores of bristling spines. About it stand its three-score courtiers representing species and varieties of the SPONDYLIDAE, from *S. varians*, Sowerby, the largest, to *S. gussoni*, Da Costa, the smallest, and a very rare one. The specimen of *S. regius* is from the Moluccas and *S. gussoni* from the Mediterranean Sea. Other exceedingly rare members of this family of very handsome shells, are *S. lingua-felis*, Sowerby, from the Philippines, *S. nux*, Reeve, from Ascension Island, the first mature specimen ever obtained (1904) of this curious and lovely shell which Reeve described from a young example, and *S. castris*, Reeve, from the Philippines, having an extraordinary pinkish callosity within. Other notable specimens are *S. multimuricatus*, Reeve, *S. imperialis*, Chemnitz, and a fine series of color variations of the flower-like *S. pictorum*, Chemnitz, from Lower California.

The allied families of LIMIDAE, PLACUNIDAE and ANOMIIDAE are well represented, and the collection is

supplemented by a small series of recent Brachiopods representing about a dozen genera and twenty species.

Magnificent and almost numberless as are the Ocean treasures in this collection there are in almost every family of the thousands of Land shells exhibited many of the rarest specimens known, as well as many of those which are most beautiful. The same may be said of the Bivalves and Fresh-water shells.

IV. RETROSPECT

Before leaving this wonderful collection, let us take a comprehensive view of its treasures. We must go from room to room, for shells fill the house and threaten to force the owners out of doors. This collection has been the engrossing life-work of an indomitable woman and the Mecca of shell-lovers. Now, it awaits a place in the halls of some great museum, there to take its part in the world's work and the world's play,—an enduring monument to industry, perseverance and love of beauty. Look again at these twenty-six thousand specimens—at the Spondylus regius and Conus gloria-maris, the Pleurotomaria, the Cypraeas and Pectens and Volutas, the polished Unios, the Harpas, the land shells, the tiny Marginellas and the Mitras, the Murices and Strombs, the Veneridae and Limpets, the thousand and one other treasures from ocean, lake and river! The beauty and rarity of the specimens appeal to us anew and we marvel again at this splendid result of individual effort.

Then, in fancy, the narrow parlors open out into long galleries of shining cases, over which bend young and old, rich and poor, an ever-changing throng. It is a vision that should become a reality and make this work of one the heritage of many. Here is a worthy gift for a great institution, commemorative alike of maker and donor. May Heaven speed the generous thought that shall embrace the opportunity thus worthily to place The Williams Collection of Shells.

93

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